



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Norman H. Bangerter

Governor

Dee C. Hansen

Executive Director

Dianne R. Nielson, Ph.D.

Division Director

355 West North Temple

3 Triad Center, Suite 350

Salt Lake City, Utah 84180-1203

801-538-5340

July 17, 1991

Mr. E. B. King
Jumbo Mining Company
6305 Fern Spring Cove
Austin, Texas 78730

Dear Mr. King:

Re: **Review of Application for Permit Amendment, New Heap Leach Pad Facility, Drum Mine, M/027/007, Millard County, Utah**

The Division has completed its review of your application to revise Jumbo Mining Company's (JMC's) approved permit for the Drum Mine. Please accept our apology for the delay in completing our preliminary review of your application to construct a new heap leach pad at the Drum Mine.

The application has been found incomplete. The following technical deficiencies must be addressed before we can proceed toward approval of this application:

R613-004-105. - Maps, Drawings and Photographs. (DWH)

Pursuant to a telephone conversation with Mr. David Hartshorn on June 14, 1991, it is our understanding that the amendment does not include a discussion of the physical location of the proposed clay borrow area which will be used as a liner for the new heap leach pad. This information must be incorporated as part of the amendment. The plan must include a discussion of the amount of clay material to be removed, topsoil salvaging practices (including volume to be stockpiled), and reclamation of the disturbed area. A map showing access to and the location and size of the disturbance must also be provided. Reclamation of this area must be factored into the required surety estimate.

R613-004-105.3 - Maps, Drawings and Photographs. (AAG)

The operator has not provided cross-sections of the proposed pad, heap, or diversion ditches. Typical cross-sections must be provided as required by this rule.

R613-004-106.4 - Operation Plan. (AAG & DWH)

The operator has not provided an estimate of the tonnages for waste/overburden to be generated, or the **actual** tonnage of ore to be placed upon the heap. This information must be provided to help in computing an accurate reclamation surety estimate.

The plan does not indicate where the mined ore will originate from. This information needs to be made part of this plan. If the ore will originate from the proposed Mizpah Pit, then that permit amendment application must be also be completed by JMC and formally approved by the Division. It would be the Division's preference to review and approve of both of these permit amendments together. This would simplify and shorten the permitting process by requiring only one presentation before the Board of Oil, Gas and Mining in request of their concurrence on the amount and form of revised reclamation surety.

R613-004-106.6 - Operation Plan. (HWS)

The operator needs to mention that as well as protection, the topsoil stockpiles will be posted with appropriate signs to prevent misuse of the material.

R613-004-106.8 - Operation Plan. (AAG & DWH)

The operator has estimated the depth to groundwater at 1465 feet. How, when and where was this determined? This determination needs to be documented.

Recent correspondence and communication received from the Division of Water Quality, indicates possible shallow ground-water contamination (elevated levels of cyanide, arsenic and metals) in a number of observation wells in the vicinity of the new heap leach pad.

Page 3
Mr. E. B. King
M/027/007
July 17, 1991

The Division requests a copy of the hydrogeologic information, groundwater data and the map(s) identifying all monitoring/observation well locations (including the possibly contaminated locations).

R613-004-106.9 - Operation Plan. (AAG)

No description of ore particle size, or the actual amount of ore to be placed upon the heap leach pad was given in the application (i.e., height of lifts). No mention of any waste stockpiles was provided in the plan. These deficiencies must be addressed.

R613-004-107.1.12 - Operation Practices. (AAG)

The operator indicates that trash and debris will be removed, but gives no indication where and how this material will be disposed of. Please provide this information to supplement the application.

R613-004-107.1.14 - Operation Practices. (AAG)

The application indicates that warning signs are to be posted, but no location or descriptions are given. Please provide this information to supplement the application.

R613-004-107.1.15 - Operation Practices. (AAG)

The new heap will be fenced, but no description of the fencing designs or type of fencing is provided. No reference to berms or fences around the pit is provided in the application. If applicable, this information must be included as part of the application.

R613-004-107.2 - Operation Practices. (AAG)

No design details or sizing rationale is given for the diversion ditches. No specific information for the existing ponds with respect to the additional collection area due to the additional leach pad, surface runoff control or safety factors for containment of a storm event was included in the application.

R613-004-107.4 - Operation Practices. (HWS)

How does the operator plan to prevent wildlife from accessing the leach pad surface during construction and operation? Please provide plans to prevent animal access to open channel flow and surficial ponding of cyanide solutions during leaching operations.

R613-004-107.4 - Operation Practices. (AAG)

The plan mentions that all deleterious materials to be used, will be neutralized or removed from the property after completion of mining and leaching operations. No mention of any other deleterious materials other than cyanide was contained in the application. All deleterious materials must be listed and made part of the application.

R613-004-109.2 - Impact Assessment. (DWH)

The plan indicates on page 6 of the application that the heap will be constructed and operated as a closed zero-discharge system approved by the State Department of Environmental Quality. Refer to comments under R613-004-106.8 above. What mitigative measures (if any) will be implemented by the JMC to address the existing level of cyanide, arsenic and associated metals contamination in the groundwater?

R613-004-109.3 - Impact Assessment. (DWH)

On page 6 of the application, rule R613-004-107, item #5, the plan states that all **soil greater than 6 inches thick** will be removed, stockpiled, and protected. On the same page, rule R613-004-109, item #3, the plan states that **any** salvageable soil will be stockpiled for reclamation. These statements conflict. The Division will assume that the later statement will be applicable, unless notified otherwise.

R613-004-109.4 - Impact Assessment. (AAG)

The heap slopes are described as being regraded to a "stable slope". No specific information regarding heap slopes during and after operations was provided in the application. Please see comments under R613-004-110.2.

R613-004-109.5 - Impact Assessment. (AAG)

No mention of mitigative measures to minimize air pollution other than the mention of obtaining an air quality permit was included in this plan. Please elaborate on this further. What are the requirements of the new or revised air quality permit?

R613-004-110.2 - Reclamation Plan. (HWS & AAG)

Reclaimed pad slopes may be no steeper than 2:1. Slopes steeper than 3:1 will require some form of supplemental slope stabilization techniques to ensure plant establishment. The plan must describe the type(s) of supplemental slope stabilization techniques that will be utilized on reclaimed slopes that may exceed the 3:1 recommended standard.

No mention of ripping the roads was included in this application. Roads that are not constructed in solid bedrock must be ripped upon reclamation. This must be included as part of the reclamation plan, and must be factored into the surety estimate.

R613-004-110.4 - Reclamation Plan. (HWS)

How will the heap leach pad be decommissioned? A decommissioning plan must be included as part of this proposal which describes the method by which cyanide residuals in the heap/pad will be neutralized and the reclamation methodology to be used on the heap/pad.

R613-004-111.2 - Reclamation Practices. (AAG)

Diversion ditches are to be left after operations cease, but no details were given on the sizing or long-term stability and erosion control of these ditches. Please explain how the long-term integrity of these ditches will be assured.

R613-004-111.3 - Reclamation Practices. (AAG)

No details on specific techniques for controlling onsite erosion and sedimentation were included in the application. Please describe the measures that will be implemented upon reclamation to assure that sediment from the disturbed areas is adequately controlled.

R613-004-111.6 - Reclamation Practices. (AAG & HWS)

No specific information regarding slope configuration or final heap configuration was provided as part of the application. The Division will not approve slopes greater than 2:1 for this area. Any slopes greater than 3:1 will require alternate methods of slope stabilization for the purpose of plant establishment. See comments under R613-004-110.2 above.

R613-004-111.7 - Reclamation Practices. (AAG)

No reference was made to any pit highwalls in the application. Will any be developed? If so, describe them and the reclamation treatments they will receive. A variance request will be necessary for any highwalls left at slope angles greater than 45 degrees.

R613-004-111.8 - Reclamation Practices. (AAG)

Roads and pads need to be ripped, not just scarified, upon final reclamation.

R613-004-111.10 - Reclamation Practices. (AAG)

No mention of the reclamation of trenches or pits was made in the application. Please include this information or provide a specific reference where this information can be found in the approved mining and reclamation plan.

R613-004-111.11 - Reclamation Practices. (AAG)

The application indicates that structures are to be removed, but does not indicate where the structures will be removed to. All structures/facilities, mining debris and trash must be disposed of in an approved/permited disposal facility.

R613-004-111.12 - Reclamation Practices. (HWS)

To what depth will topsoil be reapplied to the area(s) to be reclaimed? Please be specific if the depth is to vary across the site.

Page 7
Mr. E. B. King
M/027/007
July 17, 1991

R613-004-113. - Surety. (AAG)

The surety estimate needs to include a 10% contingency, five (5) year escalation and third party costs. More information is required regarding the heap configuration, size and composition of the leached material, and heap neutralization before an accurate surety estimate can be calculated.

GENERAL COMMENTS:

1. The Division is in receipt of the review comments from the Bureau of Land Management, dated April 17, 1991. We concur with the BLM comments and request copies of the subsequent information which JMC will be providing pursuant to their review.
2. We understand that a series of detailed leach pad design plans have recently been submitted to the State Bureau of Water Pollution Control. We will also need to evaluate the design details for construction of the entire heap leach facility. This information is necessary to help assess potential environmental impacts, determine adequacy of the decommissioning and reclamation plan and to prepare an accurate reclamation surety estimate.
3. The Division will not accept additional permit amendment applications which make reference to the approved plan without specific reference to the volume, section, page and date of the previous submittal/approval. The Division will condition its approval of this permit amendment upon JMC's written acceptance and agreement to provide us with an updated, reformatted and consolidated mining and reclamation plan/permit application. The new application must include **all** of the permit revisions/amendments included under the approved Drum Mine permit. The permit application should be formatted such that any future changes can be easily made and inserted as replacement pages to a specific section of the approved mining and reclamation plan, or appended as a new section.

The existing plan is quite fragmented, unconsolidated, confusing and very hard to follow. The Division has a number of other approved permit applications on file which we can make available to JMC for use as a reference/guide in reassembling and reformatting the present approved permit application.


Page 8
Mr. E. B. King
M/027/007
July 17, 1991

A preliminary time frame for submitting a revised application would be within six (6) months of our formal notification of approval of this permit amendment.

4. The operator is reminded that the previously submitted permit amendment for the Mizpah Pit has not been formally approved by the Division. Our last review letter dated September 6, 1990, remains to be addressed. It is likely that some responses to the review comments will need revision due to operational or administrative changes that may have transpired since then (copy attached). Approval of the Mizpah Pit permit amendment is not a condition to our approval of the new heap leach pad amendment.

These concerns and technical deficiencies must be addressed before we can continue our review and proceed toward approval of this application. Thank you for your patience and assistance in completing this permitting action. Please contact me, or D. Wayne Hedberg, should you have questions or concerns with the content of this review document.

Sincerely,


Lowell P. Braxton
Associate Director, Mining

Attachment

DWH/jb

cc: Dave Hartshorn, JMC, Drum Mine
Don Ostler, DWQ
Rex Rowley, BLM, House Range RA
Minerals staff

M027007.1